studies was intermediate (score: 17 of 28). Almost all studies examined objective health measures, with most indicating non-significant differences between the Maps™ intervention and the control group/s. Mixed results were found regarding the influence on HbA1c. The majority of studies reported no significant change in blood pressure and mixed results were found regarding other health indicators. Only five studies examined subjective measures and eight assessed the effects on health behaviors, mostly reporting non-significant or positive findings. **CONCLUSIONS:** This review provides evidence about the limited number and relatively low quality of studies, which examined the influence of Maps™ on health outcomes. Although Maps™ hold the potential to improve health outcomes, there is a need to develop well-designed large sample studies that enable to draw more conclusive results.

PDB116
THE ROLE OF EDUCATION IN THE MANAGEMENT OF TYPE 1 DIABETES MELLITUS IN ENGLAND
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OBJECTIVES: Type 1 diabetes mellitus (T1DM) affects approximately 400,000 people in the UK, amounting to £1.8 billion in direct healthcare costs in 2012. Statistics from the 2012/13 national diabetes audit (NDA) suggest that 92.4% of T1DM patients in England fail to achieve target haemoglobin A1c (HbA1c) levels (<48 mmol/mol [6.5%]). Current NICE draft guidance recognises the importance of education on glycaemic control; recommending courses for all T1DM patients within one year of diagnosis. However, only 4.1% of newly-diagnosed diabetics are offered structured courses such as the Dose Adjustment for Normal Eating (DAFNE). We sought to determine the relationship between educational course availability and uptake, and target HbA1c achievement. **METHODS:** Educational course attendance data and HbA1c results for T1DM patients was extracted from the 2012/13 NDA for 9 regions in England, and DAFNE centre location records for 2014 were obtained. We explored the relationship between educational course uptake and optimal HbA1c achievement in newly-diagnosed patients, and also the number of DAFNE centres against overall T1DM HbA1c achievement. **RESULTS:** Newly-diagnosed T1DM patients consistently manage HbA1c better than the overall T1DM population. However, no association was found between education course uptake or the number of DAFNE centres per region, and optimal HbA1c achievement in newly-diagnosed patients. A weak positive correlation was found between the number of DAFNE locations, and patients in the overall T1DM population achieving optimal HbA1c (R2=0.3). **CONCLUSIONS:** Educational courses may help T1DM patients achieve better glycaemic control. However, uptake for courses is below current NICE draft recommendations. Increasing uptake for such courses could help improve target HbA1c achievement in the long-term, whilst also providing a societal benefit through cost savings. Examining potential socio-economic factors and their impact on course uptake could be investigated. More research is required into educational course uptake in the overall T1DM population.

PDB117
DIABETES IN TURKEY: ANALYSIS OF PATIENT CHARACTERISTICS
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OBJECTIVES: As the number of people with diabetes grows worldwide, it becomes a challenging problem for public health budgets. The objective of this study is to investigate and analyze the main characteristics of diabetes in Turkey. **METHODS:** Claims data from Turkish Social Security Institution were collected for the diagnosed patients having insulin dependent (IDD) and non-insulin dependent diabetes (NIDD) between 2010 and 2014. Prevalence, incidence, age and gender distribution, and mortality figures were aggregated and analyzed in order to show how the disease is evolving. **RESULTS:** Number of patients diagnosed with diabetes between 2010 and 2014 totaled 3.1 million; nearly 85% with NIDD and 60% were females. On average 645,000 new patients were added yearly. The incidence of diabetes dropped from 0.94% to 0.76% in 2010-2014, where IDD and NIDD were 0.06% and 0.71% in 2014 respectively. While the share of NIDD patients represented 81% in 2010, the figure hiked 90% in 2014. When it comes to age distribution, 46-64 age group received the largest share (48%) among all patients, followed by 25-45 and 65+ age groups, all three constituting nearly 96%. The average age of first diagnosis for male and female were 58.6 and 59.4 respectively, signaling that the disease is late diagnosed compared to other countries. In addition, 21% of females and %14 of males died over four-year time and average age of death was nearly the same in both diabetes types. **CONCLUSIONS:** Despite the decline in the incidence, diabetes epidemic is expected to grow in the future with lower mortality rates. Late diagnosis of diabetes seems to be the most important problem in Turkey. Then, immediate action is needed for new strategies such as yearly monitoring and public education programs to reach out patients earlier.

PDB118
THE IMPACT OF HEALTHCARE POLICY BASED ON DRUG PLAN PERSPECTIVE VERSUS THE MINISTRY OF HEALTH PERSPECTIVE: A CASE STUDY OF THE ODPRN RECOMMENDATIONS OF RESTRICTING REIMBURSEMENT OF TESTOSTERONE REPLACEMENT THERAPY FOR HYPOGONADISM IN ONTARIO, CANADA
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OBJECTIVES: The Ontario Drug Policy Research Network (ODPRN) published recommendations to restrict reimbursement and coverage criteria of testosterone replacement therapy (TRT) in Ontario. The ODPRN's budget impact analysis (BIA) evaluated: no reimbursement change (option A), restricting coverage of all forms of TRT (option B), restricting oral and topical forms only (option C), or restricting topical forms only (option D). The analysis assumed exponential growth of TRT expenditures and inappropriate use in 7%-46% of patients. The analysis was limited to drug prescription costs and excluded other costs affected by the recommendations, resulting in forecasted savings ranging from $7-$16 million over a 3-year period. JSS Medical Research performed the BIA from the ministry of health perspective. **METHODS:** Our hybrid epidemiological and claims-based BIA included costs of TRTs and key cost drivers of physician visits, administering injectable TRTs, testosterone level testing and Exceptional Access Program evaluation and processing. Ontario prescription drug expenditures based on claims data, as well as published literature and expert opinion were utilized. We evaluated the impact of the ODPRN scenarios with and without inappropriate TRT use over a 3-year period. **RESULTS:** Based on the JSS assumption of all patients qualifying for TRT and taking into consideration key cost drivers, option B would cost $1.01 million; option C $766,000, and option D $252,000. Using ODPRN assumptions of inappropriate use, JSS forecasted savings of $373,000-$13.4 million as opposed to savings of $7-$16 million forecasted by the ODPRN. **CONCLUSIONS:** ODPRN savings exclude key cost drivers and assume a greater magnitude of inappropriate use. The burden of the policy change could completely offset savings and generate costs of up to $1 million to the healthcare budget. Healthcare policy recommendations based on drug costs alone underestimate the true cost, shifting and in this case creating additional costs to other areas of the healthcare system.

PDB119
DO ACCESS RESTRICTIONS ALWAYS IMPLY COST REDUCTION? CASE OF TURKISH DPP4 MARKET IN TREATMENT OF TYPE II DIABETES
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OBJECTIVES: Treatment guidelines propose stepwise approach for type II diabetes management: metformin (Met) as first, Met + SUs or other oral antidiabetic agents (i.e. DPP4s) or insulin as second or third line. Despite this evidence based line treatment, DPP4s prescriptions in Turkey can be initiated only by endocrinology or internal medicine specialists working on tertiary care since March 2010 to control DM treatment budget. This access restriction may naturally cause prescription shifts to non-restricted treatment options such as insulins. This research's objective is comparing yearly usage ratio of insulins and DPP4s in Turkey and 5 European Turkey's price reference countries. **METHODS:** Sales as international units(IU) and value between 2010-2014 are obtained from IMS Dataview7. Yearly total insulin vs. DPP4s as IU/SU and US$ sales is compared between Turkey and France, Greece, Italy, Portugal, Spain. **RESULTS:** Insulin to DPP4s utilization ratio in Turkey(183) is 4,6 times higher than reference countries' average (40) in 2014. Compared to 5 EU countries, total insulin to DPP4s utilization ratio is consistently the highest (540 in 2010 and 183 in 2014) in Turkey between 2010-2014. As value sales, the highest ratio of total insulin to DPP4s is in Turkey (7,2), followed by Italy(2,9) and France(1,3). In Portugal, Spain and Greece this ratio is below one, indicating higher DPP4 value sales compared to insulins. Reversed ratio of insulin to DPP4s in Turkey is also present between 2010-2013. **CONCLUSIONS:** Turkey has the highest insulin to DPP4 ratio over five years among other countries. DPP4s access restriction might have caused early and disproportionate insulinization of patients. From health policy perspective, implementation of access restriction might have led cost reduction in the short run, however it may cause greater burden due to shifts to later treatment lines.

PDB120
DO FREE MEDICATIONS IMPROVE OBSERVANCE AMONG DIABETIC PATIENTS?
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OBJECTIVES: Diabetes is a chronic condition for which effective medications must be taken continuously (i.e. patient must be observant). Research shows that introducing user fees may reduce patient observance. However, there is little evidence that providing free medications improves diabetic patient observance. Taking advantage of a change in Quebec (Canada) policy the objective of this study was to assess whether the return to free medications (RFM) improved diabetic patient observance. **METHODS:** This study used a pretest-posttest design: drug use by diabetic patients in the 3 years prior to RFM was compared to their drug use in the 2 years following RFM. Data came from the Quebec public drug plan (QPDP) for three groups: social welfare recipients, elderly receiving full guaranteed revenue supplement (GRS) and those receiving partial GRS. Data on oral antidiabetic drug consumption were obtained for a random sample of patients that were covered by the QPDP during the full five year period (N total = 3308). Two indicators of observance were measured: whether a patient was using antidiabetic drugs at least 80% of days and the proportion of days where antidiabetic drugs were used. These were measured both for the 12 months following the first prescription prior to RFM and after RFM and for the whole pre-RFM and post-RFM periods. To compare pre and post RFM data, we used Chi-square test for the first indicator and t-test for the second indicator. **RESULTS:** The proportion of patients who were observant was significantly ($p<0.001$) higher after RFM compared to before RFM, both for 12 months (87.3% vs. 82.8%) and the whole period (85.3% vs. 83.7%). The proportion of days where antidiabetic drugs were used also was significantly higher (92.3% vs. 89.2%; 90.8% vs 86.6%). **CONCLUSIONS:** Providing free medications to diabetic patients raised their observance and may have improved patient outcomes.

PDB121
QUANTIFYING THE EFFICACY-EFFECTIVENESS-GAP USING THE EXAMPLE OF METFORMIN
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OBJECTIVES: According to the literature, there is a gap between the results of clinical trials (efficacy) and the effects of the same intervention in real-life (effectiveness). Although this so-called "efficacy-effectiveness gap" is often mentioned in